ENGINEERS REPORT

ZONE NW-1

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REPORT OF PROPOSED IMPROVEMENT FOR ZONE NW-1 OF THE
COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
DUTS NOS. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11)

Boards 1956

that accompany extreme rapid growth are with us. The
flood damage and storm drainage problems are familiar to all.
conditions may be corrected, by action of the voters, when ap-
proves a bond issue to defray the cost of improvements proposed
report.

The disastrous floods of 1955, 1952, 1911, 1893, and 1862 were glaring
examples of the extreme inadequacy of existing natural and man-made flood
control and drainage facilities.

A series of dry winters, which, unfortunately, usually coincide with
a period of rapid population increase and development, tend to cause for-
getfulness of the purpose of a watercourse. In some cases, they were ignored;
in others, an undersized channel becomes the expedient. While it is possible
that people seeking development sites may be deceived by innocent appearing
dry channels, it is a well known and tragic fact that flooding water
quickly exposes the deception and leaves, in its aftermath, much destruction,
loss of property and discomfort.

Floods usually leave the natural channel seeking a more direct route
toward sea level and, receding, they present the familiar picture of damage
to homes, industrial property, roads and agricultural land, deposits of mud
and debris, possible loss of life, epidemics and chaos.

However, in the case of Zone NW-1, even a more direct route of flood
waters to sea level is woefully lacking. Due to a series of factors that
include tidal silt, subsidence and other factors described in the following
brief history, flood waters spread over wide areas, and sometimes remain
ponded for weeks before they are dissipated.

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INTRODUCTION (CONTINUED)

Early in the twentieth century certain industrial and agricultural interests built a series of levees on the south Bay frontage from Mayfield Slough, north of Palo Alto, to Steamboat Slough at Alviso.

In building the levees, much land was reclaimed for use because it was no longer subject to inundation by the daily tidal action of San Francisco Bay. Unfortunately, however, in the process of constructing the levees, five major outlets for winter run-off were dammed off, necessitating diversion of the waters from seven creeks and one river, the Guadalupe.

These major outlets that have been partially or completely divorced from their original function of carrying off flood waters are Mayfield Slough, Charleston Slough, Jagels' Slough, Mountain View Slough and Guadalupe Slough.

The only existing outlet for run-off from the watershed of Stevens, Permanente, Adobe, Matadero and Barron Creeks is through the gates of the Palo Alto Flood Basin into the outer reaches of Mayfield and Charleston Sloughs. This basin (and its gates) was originally designed to provide an outlet for only Matadero, Barron and Adobe Creeks; run-off from these three creeks has now exceeded the design estimate (due to unprecedented build-up of the area), and with the addition of waters from Stevens and Permanente Creeks, the entire system is so completely inadequate that it is almost inoperable.

During periods of heavy rainfall, such as that of the 1951-52 and 1955-56 winters, an area comprising some 2,000 acres, south of the aforementioned levees, remains inundated for weeks while the Palo Alto Flood Basin gates slowly release the water during successive low tides. The potential and actual property damages and health menace under such conditions are self-evident.

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PURPOSE AND SCOPE OF REPORT

Zone NW-1 of the Santa Clara County Flood Control and Water Conservation District contains approximately 94 square miles in Santa Clara County and embraces the watersheds of the Stevens, Permanente, Adobe, Barron (Dry) and Matadero Creeks and their respective tributaries, and a portion of the San Francisquito Creek watershed and its tributaries. The following report, in general, explains the proposed improvement consisting of related projects within Zone NW-1 consisting of work on the above creeks. This report explains the proposed work as a single improvement. Each portion of the improvement is given individual attention in later portions of this report, and, for reference purposes only, each portion of the improvement has been assigned a project number. The scope of this report is preliminary in nature, and deals principally with the main phases of engineering and planning. It shows:

1. A general description of the work proposed to be done, together with general plans, profiles, cross sections, and general specifications relating thereto, on each project constituting the improvement.
2. A general description of the land, rights of way, easements and property proposed to be taken, acquired or injured in carrying out said work.
3. Maps which show the location of each of said projects constituting the improvement, and land, rights of way, easements and property to be taken, acquired or injured in carrying out said work, and any information in regard to the same that is deemed necessary or useful.

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4. An estimate of the cost of the improvement in Zone NW-1 and each of the projects constituting the improvement, which includes an estimate of the cost of land, rights of way, easements and property proposed to be taken, acquired or injured in carrying out said improvement, and also of all incidental expenses likely to be incurred in connection therewith, including legal, clerical, engineering, superintendence, inspection, printing and advertising, and the total amount of bonds necessary to be issued to pay for the same.

In addition, the report contains general information as to past flooding, benefits to be expected from the improvement, estimated costs and methods of financing.

The accompanying general plans and specifications have been prepared to establish the economic feasibility of the proposed improvement. General construction plans for some of the projects within Zone NW-1 have been designed and prepared by various civil engineers engaged by the District. The engineering staff of the District prepared the plans for Stevens Creek from Central Avenue to San Francisco Bay and Permanente Creek from Bayshore Highway to San Francisco Bay. Said Stevens-Permanente Improvement specified as Project No. 1 in this zone and includes some additional tide gates in Palo Alto Tidal Basin. The office of the City Engineer of Palo Alto and the firm of George S. Nolte prepared the plans for: Adobe Creek, Project No. 10; Barron (Dry) Creek, Project No. 6; and, Matadero Creek, Project No. 8; all three projects running from the south City Limits to Palo Alto Tidal Basin. Harry N. Jenks prepared the plans for: Barron (Dry) Creek, Project No. 5, from Junipero Serra Boulevard to south City Limits; and Matadero Creek, Project No. 7, from Junipero Serra Boulevard to the Palo Alto City Limits. Thelo Perrott prepared the plans for: Permanente Creek,

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Project No. 3, from Portland Avenue to Bayshore Highway, including a diversion to Stevens Creek; and, San Francisquito Creek, Project No. 2, from El Camino Real to San Francisco Bay. The Engineering firm of Clyde C. Kennedy prepared the plans for Adobe Creek, Project No. 4, from Elizabeth Avenue to Alma Street. The firm of Don Reincehl prepared the plans for Hale Creek, Project No. 9, from approximately Fremont Road to the Confluence with Permanente Creek. Project No. 11, Stevens Creek from Bryant to Central Avenue, by District Staff.

TOPOGRAPHY WITHIN THE ZONE

Zone NW-1 contains approximately 94 square miles. The mountainous area within the Northwest Zone encompasses an area of over 43 square miles. Its steep slopes in general include the area between the "Skyline" ridge (highest point of elevation 2767 feet) and the base of the hills. The 51 square miles of valley includes the alluvial plain that slopes in a more or less northeasterly direction from elevations approximating 350 feet at the base of the hills to minus 3 feet immediately south of the salt evaporating ponds.

Included in the zone, in addition to concentrated urban areas, are scattered and sprawling residential districts in both unincorporated and incorporated areas. Incorporated cities lying wholly or in part within the zone are Palo Alto, Mountain View, Los Altos, and Los Altos Hills.

At present a majority of the valley floor is still agrarian, but existing trends of city growth indicate complete ultimate residential (and/or commercial and industrial) development of the entire valley portion within the zone boundaries. Agricultural usage includes orchards, vineyards, row crops, and pasture. Most of the agrarian land is in a four-mile-wide band adjacent to the foothills. The valley floor, particularly that portion adjacent to San Francisco Bay, is subject to considerable subsidence.

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[redacted] flood control is a critical necessity to the development, safety and economy of Zone NW-1. An intolerable situation exists [redacted] residential, commercial, industrial and institutional areas, orchards, [redacted] highways, railroads and other public and private properties [redacted] subjected to and damaged by floods as most recently evidenced during January, 1952 and December, 1955 storms.

During these floods, most of the natural streams within Zone NW-1 overflowed their banks in various places, particularly in Palo Alto, Mountain View, Los Altos and agricultural areas from the foothills to the Bay. Creek overflow during the 1955 flood inundated large areas and caused damages in Zone NW-1 estimated to be $2,100,000 .

Other rainfall years* of more severe floods have been 1951-1952, 1940-1941, 1918-1919, 1910-1911, 1892-1893, and 1861-1862. The areas adjacent to Moffett Field were flooded from 4 feet to 7 feet deep in many of the years mentioned above. Other regions in the Zone have experienced damaging inundations many times.

During a storm occurring in September, 1918, between 25% and 50% of prune crops were destroyed by floods and heavy damage occurred to tomatoes, peaches, hay and grain. It was estimated that damage to crops ran into several millions, but the exact amount cannot be found in the records.

In the major storm of the 1940-1941 rainfall year the area adjacent to Matadero Creek south of and through Palo Alto was flooded. No accurate estimate of damage was made at the time.

During the 1951-1952 storm, floods covered large portions of the zone. Damage to private property in the County was estimated at over $500,000 and the loss of one life. Damage to creeks was not estimated, but immediate and accumulated damage to roads and bridges approached $700,000.

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*Yearly rainfall in this area is computed for the fiscal year beginning on

In 1955-1956 the damages within the County approximated $8,500,000 including creek damages at $2,400,000. Immediate damage to County roads and bridges was estimated to be $541,000 with accruing damage probably approaching $2,500,000. Heavy rainfall was for the most part limited to the "west hills" (Santa Cruz Mountains).

Preliminary estimates indicate that damages to Public property within cities may exceed $1,500,000; to Public Utilities $100,000; to residential and industrial property $2,000,000.

Agricultural losses will not be available until damage surveys are completed and until the effect of the flood is indicated at harvest time. However, unofficial estimates indicate losses totaling several million.

Evacuations from homes in portions of Palo Alto were ordered during the 1955 flood, to prevent loss of life, particularly in the San Francisquito Flood Plain. Overflow occurred upstream from the Pope Street bridge as well as in several levee breeches downstream.

According to available records in the office of the Santa Clara County Engineer, the areas historically subject to flooding in the northern portion of Santa Clara County are as follows:

1. A strip along El Camino Real approximately one (1) mile long on the northerly side of Stanford University. This area includes roadside business, choice residential districts, light industry and the site of the expanding industrial and commercial subdivision on the Stanford University property;

2. The area known as Barron Park, bounded on the north by El Camino Real and on the south by the SPRR (Los Altos Branch). This land borders the Matadero and Barron Creeks and is principally higher value residential, with some roadside business along El Camino Real such as restraurants and motels;

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3. A strip immediately north of El Camino Real and the SPRR tracks (Main line) approximately one-half (1/2) mile on either side of Matadero Creek. Medium priced private homes make up the greater part of this area with some light industries along the railway;

4. All the region, bordering both the Matadero and Barron (Dry) Creeks from the SPRR (Main line) to Bayshore Highway, consisting mainly of higher to medium priced residences; and

5. All the area from the westerly boundary of the U. S. Naval Station at Moffett Field to the San Francisquito Creek at the west and from the Leslie Salt Ponds at the north to Bayshore Highway at the south. Also a strip approximately one-half (1/2) mile wide bordering Bayshore Highway on the south, from San Francisquito Creek to Permanente Creek.

The portion of the area bordering Bayshore Highway includes roadside business such as restaurants, motels and service stations. The area south of but not bordering Bayshore Highway is principally residential in the medium to low priced range. The residences north of Bayshore Highway are mainly low cost. Along Embarcadero Road north of Bayshore Highway in Palo Alto are the Palo Alto Airport, Yacht Harbor, Municipal Golf Course and Sewage Treatment Plant. The area between Embarcadero Road and Moffett Field north of Bayshore Highway is primarily agricultural with the exception of a long-range radio installation between Embarcadero Road and the Matadero Creek.

In areas adjacent to San Francisquito Creek flooding and overflow has occurred many times in the past as testified by Professor Wing of Stanford University and will occur again in the future if no improvements are made to provide for the flood flow in the creek channel.

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Professor Wing testified in a public hearing at the Palo Alto City [illegible] on February 17, 1942 and the testimony was recorded in a report entitled "A Preliminary Examination and Survey for Flood Control of [illegible]tadero and San Francisquito Creeks, Santa Clara and San Mateo Counties, California, etc." Professor Wing states that:

> "In 1893 water overflowed from San Francisquito Creek near Governors Mansion, thence flowed under the railroad underpass between the depot and the creek and into the vicinity of Homer and Cowper Streets -- the entire area from the Embarcadero Road north was under water waist deep".

He further states that while wading waist deep through an overflow of San Francisquito Creek in the vicinity of what is now the Palo Alto City Hall he shot a 16 pound salmon.

From all the testimony given it is quite evident that, in the future, overflows will occur again if channel capacity is not provided for flood peak runoff. Subsequent overflows, however, will be much more serious because of the steady trend toward more densely populated and built-up areas.

BASIC CONSIDERATIONS

The rate of growth of the Santa Clara Valley at the present time is between 3500 and 4000 persons per month. People are, for the most part, being attracted to this area by the employment possibilities in new industries and commercial enterprises. The new residential areas resulting from this growth are served by storm drainage systems having their main outfalls into existing stream channels.

Water which used to pond on orchard land or be retarded by vegetal growth is, to an increasing degree, being intercepted by gutters and drainage collection systems and carried rapidly off to the streams. A greater percentage of rainfall is being drained off laterally from the

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surface of the land rather than being allowed to percolate into the soil. Storm runoffs which occurred only infrequently when the land use was primarily agricultural will occur with ever increasing frequency as the imperviousness of the area increases and the flow velocity is increased by drainage collection systems.

Channel improvements are planned with the following factors in mind:

1. Provide a waterway of adequate capacity to carry the runoff from fully developed land on the valley floor receiving precipitation from a storm estimated to occur on an average of every 50 years; and, to provide, where possible, an additional safety factor (freeboard) which will, increase capacity to that of a 100 year frequency storm.

2. Final alignment and capacity to fit the future development pattern of the area, and also to cause a minimum of property severance along the route of the stream.

3. Provide a means of ready access to the channel so that emergency and maintenance crews can take care of any exigency.

4. Design improvements within the economic limits reached when initial construction costs are balanced against future anticipated maintenance expense.

5. Provide channels of sufficient depth to accomodate future storm drains from remote areas of the basin.

GENERAL SPECIFICATIONS

On all of the projects in the proposed improvement, general specifications for all types of excavation, levees, channel lining, structures, appurtenances, and miscellaneous construction shall be according to standards of the County of Santa Clara and applicable provisions of construction details, Section 10 to Section 60, inclusive, of the specifications entitled "State of California, Department of Public Works, Division of Highways, Standard Specifications, August 1954", insofar as they apply.

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Specifications are herein referred to as the Standard Specifications are hereby made a part of these specifications. In the event of conflict between the Standard Specifications and the special provisions of these specifications, the latter shall apply.

Channel excavation and levee construction shall be made as shown on the plans, or as directed by the engineer, true to line, grade and cross-section. Whenever possible, excavated material shall be used for levee construction. When excavating within a roadway, one traffic lane each way shall be kept open and in safe condition at all times, unless written permission to close the road is obtained.

Bridges, culverts, wingwalls, check dams and channel linings shall be constructed of reinforced concrete or other structurally adequate material as shown on the plans, and the work shall conform to appropriate provisions of the Standard Specifications.

Service road bridges shall be constructed in locations to be determined by the engineer. The work shall conform to the provisions of the Standard Specifications.

Details of, and specifications for, all appurtenant pipes, tide gates, utility changes and/or protection, as well as all other details required to make a complete project shall be specifically described in specifications to be prepared to accompany contract bid plans.

Typical cross-sections and profiles are as shown on the accompanying plans.

GENERAL DESCRIPTION OF LAND, RIGHTS OF WAY AND EASEMENTS

Land, rights of way and easements will be required to provide for construction and maintenance of channels, levees, access and maintenance facilities, and the retarding basins. All real estate thus to be acquired is graphically described on the accompanying general [illegible]

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[illegible] OF STRUCTURES AND UTILITIES

Certain utilities such as sanitary sewers, storm sewers, gas mains, [illegible] mains, telephone cables, electric power and telephone lines, etc., will have to be raised, lowered or relocated where such utilities conflict with the proposed improvements.

[illegible] MAINTENANCE

Various types of maintenance and erosion control will be required from time to time on the rights of way, channels, improvements and basins acquired by the District. Cost of such maintenance or erosion control is not included in the estimated costs or the amount required for a bond election. Financing for maintenance and erosion control will be derived by an annual tax or assessment levied pursuant to Section 13 of the Santa Clara County Flood Control and Water Conservation District Act.

[illegible] DESCRIPTION OF IMPROVEMENTS

The most feasible solution of the flood control problem will include, in general, the following items of work on each project as shown on the accompanying respective plans:

1. Constructing adequate channel sections, where the existing channel is insufficient to carry design flows, by deepening, realigning and widening.

2. Improve or replace all existing bridges and culverts which serve as local obstructions to the channel capacity.

3. Clear and remove the accumulation of trees, brush and debris which impede flow in existing channels.

4. Lining portions of the channels with reinforced concrete.

5. Constructing or improving various hydraulic structures to control velocity and reduce erosion.

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In the portions of existing creeks that have a channel section adequate to carry design flows, improvements should be limited to clearing the channel of brush and debris. In these areas the retentive [illegible] of, and erosion protection provided by the natural state of the [illegible], should be maintained. However, planting should be established [illegible] indicated on the drawings to prevent abutting property owners from encroaching upon the natural limits of the stream.

Existing bridges or culverts that should be replaced are indicated on the plans. Where the existing bridge can be modified to increase its capacity, the improvement will consist of the following items of work: Construction of a reinforced concrete floor, protective cutoff walls and transition sections at both ends of the bridge.

It is expected that certain reasonable modification may have to be made in the improvement plans to suit changed conditions that may exist at the time of construction.

In addition to the construction indicated on the plans, the following items may be included, if determined to be a necessary adjunct to the project: Automatic drainage gates, appurtenances, access rights of way for maintenance and other items to be determined by the engineer.

Other items of work will include those listed under the hereinafter described improvements:

IMPROVEMENT OF STEVENS CREEK FROM CENTRAL AVENUE TO SAN FRANCISCO BAY, AND IMPROVEMENT OF PERMANENTE CREEK FROM BAYSHORE HIGHWAY TO ITS CONFLUENCE [illegible] PROPOSED STEVENS CREEK CHANNEL NEAR MOUNTAIN VIEW SLOUGH [illegible] NO. 1

AMENDED REPORT

The following information and data, as well as applicable sections of the foregoing portion of this report, applies to the Improvement of Stevens

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Permanente Creeks within the hereinabove mentioned limits and is an amended report on a more limited project. The original report was filed on February 24, 1956, a public hearing was held thereon on March 19, 1956 at 11:00 A.M. in the hearing room of the Civic Center, North First and Mesa Streets, San Jose, California. The limits of the project at that hearing included improvements of Stevens Creek from 1500 feet south of Moffett Boulevard to San Francisco Bay and Permanente Creek from Bayshore Highway to its confluence with the proposed Stevens Creek channel near Mountain View Slough. At the conclusion of said hearing the Board approved the accompanying Engineers Report. The purpose of the amended report is to include said project within the scope of this report and overall improvement for Zone NW-1 and the hearing to be held thereon, and to revise the method of financing to conform to the provisions contained herein, and to revise the limits and design of the improvements because of proposed consolidation of flood waters by the diversion of Permanente Creek into Stevens Creek near Bryant Avenue.

For the purposes of this report the limits of the project will be extended to Central Avenue on Stevens Creek only.

In addition to the improvements hereinbefore described the remaining portions of the project will include:

1. Lined channel for Stevens Creek from Central Avenue to approximately 3400 feet north of Bayshore Highway and for Permanente Creek from Bayshore Highway to Charleston Road;

2. Unlined channels and levees;

3. Construction of a system of retarding basins;

4. Dredging of Mountain View and Charleston Sloughs with high level floodway installations at the southerly end of the former, and at

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...erly end of the latter. Tide gates will be installed through ...ways to serve the dual purpose of channel flushing and low tide ...ge of the retarding basins; and

5. Installation of a battery of tide gates in the levee of Palo Alto Flood Basin, together with cleaning and repair of existing gates.

Retarding basins will serve a double purpose by partially absorbing peak flows that coincide with high tides, and minimize maintenance by providing a flushing system to carry tidal mud out of the outfall sloughs.

Dredging of the outlet sloughs will be required initially because of tidal mud deposited over long years of disuse. However, as stated above, maintenance dredging will be minimized or eliminated by using the retarding basins as a flushing system during the summer months. A flexible system of automatic tide gates and floodway weirs will be used to flush the sloughs by holding tide water in the ponds until low slack tide, then releasing it at high velocity through the slough channels.

The afore-mentioned channel improvements will accommodate the estimated flood flow from the Stevens and Permanente Creeks watersheds draining the northeasterly slopes of the Santa Cruz Range and the adjacent alluvial plain.

IMPROVEMENT OF STEVENS CREEK FROM BRYANT AVENUE TO CENTRAL AVENUE
PROJECT NO. 11

No work, other than a minimum amount of clearing, is proposed for Stevens Creek from Bryant Avenue to Central Avenue. The main purpose is to provide a plan line along and adjacent to the creek.

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IMPROVEMENT OF PERMANENTE CREEK FROM PORTLAND AVENUE TO BAYSHORE HIGHWAY
PROJECT NO. 3

In view of the encroachment of subdivisions on the existing channel, the most feasible solution seems to be the diversion of Permanente Creek into Stevens Creek near Bryant Avenue.

The by-pass to Stevens Creek will start at a diversion point on Permanente Creek 1200 feet north of Portland Avenue and will thence traverse [illegible], which are now orchard, due east to Stevens Creek a distance of approximately 1.3 miles.

This channel is designed to provide, if necessary, for the entire flow of Permanente Creek from the diversion point upstream plus the additional drainage area of approximately 670 acres bounded by Fremont Road, Permanente Creek, Stevens Creek and lying south of the diversion. Normal operation would, however, allow for a small flow to continue down Permanente Creek to provide water for flushing the creek channels and supplying some private irrigation pumps. Four major structures are required: Diversion structure, drop structure, Grant Road Bridge and confluence structure.

The additional flow from Permanente Creek will not become a serious problem in Stevens Creek because there is ample channel capacity upstream from approximately the SPRR (Main Line). Plans are described elsewhere in this report for the improvement of Stevens Creek below this point to carry higher flows.

The diversion structure has been designed with open channels to operate as an automatic flow regulator and at the same time allow free passage for any floating debris in the creek.

The entire length of the diversion channel is proposed to be concrete lined so as to require a minimum width of right of way and to provide the least amount of maintenance.

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With construction of the diversion channel, lining of the present Permanente Channel would be reduced to a minimum and will only be necessary

the Hatch-Hitchy pipe line crossing to a point south of the SPRR. The remainder of the alignment will include principally unlined channel. With the exception of additional corrugated metal culverts at Ernestine Lane and upstream from El Camino Real all structures will become adequate upon the addition of warped wingwalls at inlets and outlets, and bottom lining. This plan will require the minimum amount of work for the least cost.

PROJECT COOPERATION ON FUTURE PERMANENTE CREEK DAM

The Santa Clara Valley Water Conservation District has proposed the construction of a dam on Permanente Creek which would serve the purpose of retarding flood waters. The dam would be primarily for use in water conservation, but would also aid in flood control in view of its ability to reduce peak flows originating in the upper two and one-half square miles (approximate) of the Permanente Creek watershed. It is probable that if the Permanente Creek dam is constructed, the decrease in flow of the Permanente Creek may affect to some extent the proposed channel sizes downstream; however, because of present channel inadequacy and anticipated development with resultant increase in run-off, channels downstream will require considerable enlarging even if a dam is constructed. At this writing, no complete estimate has been made in regard to the effect of the proposed dam on the channel sizes and costs downstream. A further study will be necessary to determine to what extent Zone NW-1 of the Flood Control and Water Conservation District is benefited for flood control purposes, and to arrive at a cost comparison of the improvement proposed in this report to the lesser improvements required with the dam constructed. The maximum financial benefit would be the difference between the estimated improvement costs as set forth herein and the lesser improvement costs which would result in construction of such dam with the resultant smaller channels downstream from the dam. Any financial contribution to the Santa Clara Valley Water Conservation District would not

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...osed said cost difference, which is included in the total estimated costs ...forth herein and the total amount of bonds necessary to be issued to ...ow the improvement .

It is hereby proposed that the Santa Clara County Flood Control and ... Conservation District and the Santa Clara Valley Water Conservation ...trict enter into cooperative agreements for the financing and operation ... such dam, if constructed, and that the Santa Clara County Flood Control ... Water Conservation District participate financially in the cost of constructing such dam in proportion to the benefits received for flood control in an amount not to exceed the maximum financial benefit as described above.

It should be pointed out that there will be no reduced costs for flood control work if the entire saving in costs of channel construction is contributed to the Santa Clara Valley Water Conservation District for flood control benefits accruing from water conservation dams, and that such contribution could occur only if the Santa Clara Valley Water Conservation District obtains approval and financing for such dam.

IMPROVEMENT OF ADOBE CREEK FROM THE SOUTH CITY LIMITS OF PALO ALTO TO THE PALO ALTO TIDAL BASIN PROJECT NO.10

In order to allow the maximum cross-sectional area practical at existing bridge structures, the channel grade is to be lowered as much as possible; exposed bridge footings will be protected with a concrete floor, and interfering utility lines will be removed. Existing bridges or culverts which are inadequate in waterway area are shown to be enlarged.

The widening of the channel is shown where necessary and where adjacent ... prevents ... acquisition of ... improved limits is estimated to be ... less expensive than lining the channel, which is the alternative. Where adjacent ... and ... and the creek channel is inadequate, or excessive flow velocities exist, concrete channel lining will be required.

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These channel and structure improvements will carry the estimated flow of the Adobe Creek watershed through Palo Alto and discharge into the Palo Alto Flood Basin into San Francisco Bay.

Many reaches of the Adobe Creek channel were severely damaged by the floods of December 1955. Fences lining the channel were washed away and erosion continued into rear yards. Levees constructed along the channel suffered extensive damage and are in critical need of repair. These damaged portions of Adobe Creek must be repaired immediately to provide adjoining properties the proper protection from flood waters.

Construction will include: Lined channel from Alma Street to a point approximately 590 feet north of Louis Road and enlargement of the existing unlined channel from that point to the Palo Alto Tidal Basin.

IMPROVEMENT OF ADOBE CREEK FROM ELIZABETH AVENUE TO ALMA STREET (PALO ALTO CITY LIMITS) PROJECT NO. 4

The proposed improvement on Adobe Creek will be similar to the hereinbefore described Adobe Creek improvement with respect to lowering of the channel grade, treatment at bridges and culverts, widening and land acquisition. Where a new channel section is required a bottom width of approximately 8 feet, with 1 1/2 to 1 side slopes has been proposed for earth lined and unlined channels. This most nearly conforms to the natural channel. Protective vegetation and a number of hydraulic structures have been proposed to control velocity and reduce erosion.

The construction, in general, will include:

1. Unlined channel from Elizabeth Avenue to a point approximately 600 feet south of Edith Avenue.

2. Lined channel from said point to a point approximately 500 feet south of the SPRR (Vasona Branch)

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3. Unlined channel from said point to a point 1000 feet north of [illegible] Real.

[illegible] channel from said point to Alma Street.

[illegible] OF BARRON (DRY) CREEK FROM THE SOUTH CITY LIMITS OF PALO ALTO TO THE PALO ALTO TIDAL BASIN PROJECT NO. 6

The proposed improvement on Barron Creek will be similar to the [illegible]re described Adobe Creek improvement with respect to the lowering [illegible] channel grade, treatment at bridges and culverts, widening and [illegible] condition.

These channel and structure improvements will carry the estimated [illegible] flow of the Barron Creek watershed through Palo Alto and discharge through the Palo Alto Tidal Basin in San Francisco Bay. Construction will include: Lined channel from El Camino Real to Middlefield Road and enlargement of the existing channel from Middlefield Road to the Palo Alto Tidal Basin.

IMPROVEMENT OF BARRON (DRY) CREEK FROM JUNIPERO SERRA BOULEVARD TO EL CAMINO REAL PROJECT NO. 5

A lined channel presents the simplest and most economical method of improving Barron Creek and is recommended as the most feasible plan for that improvement.

Under the recommended plan the existing channel from El Camino Real west, would be shaped and lined with concrete, thereby providing a safer, cleaner and more efficient waterway than now exists. Existing culverts at street crossings would need to be [illegible]. However, existing driveway bridges in most cases will require resetting or replacing. That portion of Barron Creek between El Camino Real and the end of Los Robles Avenue is recommended for stage one construction in order to provide protection as soon as possible to the residential areas. Also included as part of stage one construction

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the clearing and brush and tree removal from that reach of Barron Creek between the Southern Pacific Company right of way and Los Robles Avenue.

In the same manner as Matadero Creek, stage two construction is recommended in presently undeveloped areas westerly of Los Robles Avenue to Junipero Serra Boulevard. Stage two construction consists of realigning the stream bed to the general alignment indicated on the plans and the installation of a concrete channel lining. In addition, it will be necessary to provide additional capacity in the culvert crossing the Southern Pacific Company right of way.

IMPROVEMENT OF MATADERO CREEK FROM THE SOUTH CITY LIMITS OF PALO ALTO (EL CAMINO REAL) TO THE PALO ALTO TIDAL BASIN PROJECT NO. 8

The proposed improvement on Matadero Creek will be similar to the hereinbefore described Adobe Creek and Barron Creek improvement with respect to the lowering of the channel grade, treatment at bridges and culverts, widening and land acquisition.

These channel and structure improvements will carry the estimated flood flow of the Matadero Creek watershed through Palo Alto and discharge into the Palo Alto Tidal Basin.

The construction will include chiefly, unlined channel from El Camino Real to said Tidal Basin.

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...T OF MATADERO CREEK FROM JUNIPERO SERRA BOULEVARD TO EL CAMINO REAL
PROJECT NO. 7

...ions of both Matadero and Barron Creeks flow through areas which ...ently unimproved. In their present undeveloped state periodic ... would do negligible damage. Other areas are highly developed, ... therefore susceptable to costly flood damage. For these reasons, ... improvement is recommended in this report. The first stage recommends ...plete and immediate improvement of channels flowing through the ...ly developed residential areas. The second stage of improvement is ...mended as a later phase, and is flexible in that it could be integrated ... future land development programs.

From the Southern Pacific right of way easterly, the Matadero Creek channel is located approximately midway between two streets and is bordered by the back of the residential lots. The channel banks are overgrown with trees and shrubbery. These back yard areas have been extensively developed in the form of patios and outdoor living areas. Many of the trees which grow in the creek banks obstruct the channel flow, causing erosion and sloughing of the banks during storm periods. As bank erosion has progressed, many of these trees have fallen into the stream damming long reaches of the channel with attendent flooding. In an attempt to alleviate this problem, many residents have attempted to stabilize channel slopes with various forms of retaining walls, bulkheads and protective features. These have served, in many cases, merely to shift the locale of bank erosion and to increase the rate of bank deterioration.

It is recommended that, that portion of Matadero Creek between the Southern Pacific Railroad right of way and El Camino Real be cleared of trees and brush which mitigate against the unimpeded flow of water, and that the channel be lined with concrete as a part of stage one construction. Improvement of crossing structures has been indicated where required,

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and transitions at structures to aid in smooth flow characteristics have been designed. Sharp bends in the existing channel are proposed to be eliminated, and rectification of the channel and confinement of the bank to a uniform, adequate cross-section is contemplated.

Tree removal and clearing is recommended as a necessary adjunct to the improvement program, but in the execution of this program all due care should be exercised so as to preserve as much of the natural beauty of the area as is possible.

Because of the proximity of existing residential improvements, no recommendation is made herein for a maintenance or service roadway for the reach of the channel between El Camino Real and Laguna Avenue. Access for maintenance (and construction) would be limited to street crossings with some possible additional entry through school property. The width of the proposed channel is such that small but adequate maintenance equipment could use the bottom of the channel as an access road. Agreements with property owners may provide additional means of access during construction. In that reach of the channel between Laguna Avenue and the Southern Pacific Company right of way, it is recommended that a maintenance road approximately 14 feet wide be acquired on the westerly side of the channel.

As previously stated, that portion of Matadero Creek between the Southern Pacific Company right of way and Junipero Serra Boulevard passes through an area as yet undeveloped. The steepness of grade and the meandering tree-lined stream bed require a realigned concrete and gunite channel as a part of the land development program. For this reason the improvement of this reach of the channel is recommended for stage two construction. Acquisition of a strip along the northerly side of the channel approximately 14 feet wide is recommended for a service or maintenance road.

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[redacted] CREEK DAM

It has been suggested by some of the residents of the Northwest Zone [redacted] the Santa Clara County Flood Control and Water Conservation District [redacted]rect a dam on the Matadero Creek. Such a dam, if constructed, could [redacted]ved either for water conservation (by percolation of the trapped waters [redacted] the subsoil) or, since percolation characteristics of portions of this area are poor, as a direct source of water supply for urbanized areas. However, any dam on the Matadero Creek would be outside the territorial boundaries of the Santa Clara Valley Water Conservation District, and, if constructed, would be constructed and entirely financed by the Santa Clara County Flood Control and Water Conservation District. Preliminary studies are now underway to determine the best location and the economic feasibility for construction of such a dam.

If such dam proves to be economically feasible, and would permit smaller channel sizes downstream, then it is proposed that any savings in construction costs and right of way acquisitions on the herein proposed Matadero Creek channel be applied toward the construction of such a dam. When and if economical feasibility is proved, a separate hearing will be held by the District to obtain the balance of finances needed, unless a dam for flood control purposes only is proposed.

IMPROVEMENT OF HALE CREEK FROM A POINT NEAR HILLVIEW AVENUE TO THE CONFLUENCE WITH PERMANENTE CREEK PROJECT NO. 9

Studies made on Hale Creek have shown that three major points of flood control must be considered in effecting an adequate flood control program on this stream. First, channel and culvert structures of adequate capacity and having proper hydraulic design. Second, control of velocities to prevent

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degradation and securing of banks. Third, the control of light and debris that may reduce the hydraulic capacity of the channel or

Most of the channel downstream from Fremont Avenue is inadequate to the design flow. The major exception to this is the stretch from Avenue to an existing concrete weir near Birchwood Drive. The rest channel must be improved for most of its length. A number of the and bridges are highly inadequate and are recommended for replace-

There is a drop of 69 feet between the ground level of Fremont Avenue and the mouth of the Creek, a channel distance of about 9800 feet. At the present time this hydraulic head is dissipated quite readily in the brushy insufficient channel and undersized culverts with only a nominal amount of energy used to generate high velocities to endanger the channel section. In the future, when these channels are enlarged and supplied with more efficient culverts the velocities will be greatly increased. This would result in a more serious erosion problem unless corrected.

The banks of unlined sections will be planted with wild grasses to provide an erosion resistant side and to slow down the velocities. It will be very important that this grass be started immediately after construction and maintained until it presents a reasonably dense side. The outside of all sharp bends in unlined section will be riprap. Since Hale Creek is lined with residences through most of its length downstream from Fremont Avenue, access on the bank would be impractical, therefore, the channel bottom has been designed with a width of 9 feet to permit access for maintenance equipment with ramps being provided at all road crossings on both sides where practical.

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Construction will include: Unlined channel from the beginning [illegible] project to the vicinity of Birchwood Dirve; lined channel from [illegible]wood Drive to the confluence with Permanente Creek; and a number of [illegible] structures.

[illegible]VEMENT OF SAN FRANCISQUITO CREEK FROM EL CAMINO REAL TO SAN FRANCISCO BAY
PROJECT NO. 2

The project has been designed to provide a maximum channel capacity to carry the flow of a 100 year frequency storm runoff providing a diligent program of channel cleaning is maintained.

Two of the existing structures, one at Middlefield Road and one at [illegible] Street, must rely on considerable head to pass the flood flows, therefore, restrictions upstream or downstream from the structures are serious and should not be tolerated.

A minimum of two foot freeboard will provide ample safety from overtopping the channel sections. It is felt that the channel section from El Camino Real to University Avenue is ample in section and grade to carry flood flows except for some short reaches which must be widened. After widening the section, it will be more than adequate for flood flows. A serious bleak in the channel section exists just upstream from the University Avenue bridge. This section consists of a multiple concrete walled channel. It is proposed to widen this section at the bottom and eliminate some head walls at the entrance thus adding to the capacity of the section.

From University Avenue to the Bayshore Highway the channel grade and the existing section is considerably less and therefore requires special treatment. It is most economical in this reach to concrete line the channel because sufficient widening without lining would involve very expensive rights of ways.

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sections shown on the drawings are minimum sections to provide for the required flows. It is therefore expected that the channel will not be uniform in cross-section but will follow the existing creek banks after they have been shaped to a practical slope.

It is proposed to retain all of the riprap now existing except the light temporary rock riprap recently placed by the Army Corps of Engineers, providing it is in good shape and incorporate it in the new concrete lining.

From Bayshore Highway to San Francisco Bay it is proposed to use an unlined channel. In this area right of way is a small problem. Except for about 1000 feet adjacent to the Bayshore Highway the lands are already owned by the City of Palo Alto.

Widening will be made on one side only, but the existing levee on the opposite side will be reinforced where necessary.

In order to carry high flood flows for short durations, it is necessary to make full use of the maximum possible hydraulic heads on the culverts, therefore, portions of the creek will have high level water at flood flows.

The land slopes sharply away from the creek banks for most of the section under study, hence storm drains terminating at either creek bank are necessarily low in the creek channel. It will be necessary to provide flap gates on all storm drain outlets in order to prevent "back flow" into Santa Clara or San Mateo Counties.

Design policy has been followed as near as feasible with the idea in mind that the natural grade of the stream be not disturbed except for removing excess gravels. Although stream flow velocities of 6 to 9-1/2 feet per second exist at the present time, it has been found that to cut velocities to under six feet per second would require a number of drop structures within the channel. This would necessitate the widening of the channel section due to lower grades and capacities and would raise the cost by 2-1/2 times, thus rendering such a project uneconomical.

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Access to the creek channel is readily available from one side or the other by existing city and county roads, therefore, it is not necessary to acquire additional lands for access roads from Bayshore Highway to El Camino Real.

In widening the section from Bayshore Highway to the San Francisco Bay a 15-foot access road has been provided on both sides of the creek.

PROJECT COORDINATION WITH CORPS OF ENGINEERS

The lower portion of San Francisquito Creek from the common boundary between the cities of Palo Alto and Menlo Park. It is also the common boundary line between the counties of San Mateo and Santa Clara. The portion of the southerly bank of San Francisquito Creek, that is within the County of Santa Clara, is also within Zone NW-1 of the Santa Clara County Flood Control and Water Conservation District. Approximately 83% of the San Francisquito Creek watershed lies in San Mateo County, and it is estimated that 90% of the run-off in the San Francisquito watershed originates within San Mateo County and outside of Zone NW-1 of the Santa Clara County Flood Control and Water Conservation District.

Since it is impossible to make plans for the correction of one side of a creek only, the plans, as proposed, show correction of the San Francisquito Creek from El Camino Real to San Francisco Bay on both sides of the channel. The existing channel has less than 3/5 capacity of the measured flow in the December, 1955 flood, and slightly less than 3/7 of the anticipated peak flow during a 100-year frequency storm.

Factors which seriously limit the present channel capacity and remedial improvements are described elsewhere in this report.

The total cost of the project as proposed in this report is $1,793,000. Of this total cost (assuming an equitable pro-rating of costs between San Mateo County and the City of Menlo Park and the Santa Clara County Flood Control and Water Conservation District), $1,043,021 would be spent on the southerly

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of the San Francisquito Creek. Therefore, the amount of $1,043,000 is [illegible] amount included in the total amount of bonds to be issued.

The Corps of Engineers, United States Army, has been authorized, in its Study of Guadalupe River and Adjacent Streams, to study the San Francisquito Creek and make recommendations for its improvement. The preliminary study by the Corps of Engineers is now under way, and may include the construction of a dam to retard excessive run-off from the mountainous headwaters. The scope of the project of the Corps of Engineers is intended to cover the length of the channel from San Francisco Bay upstream to lands near Searsville Lake in San Mateo County.

If, according to Federal standards, the improvement of San Francisquito Creek is economically justified, Federal funds will made available to do most of the work in improving the San Francisquito channel. However, in order to obtain financial assistance from the Corps of Engineers, the local agency must provide rights of way for such channel improvement, conform to the design standards as determined by the Corps of Engineers and probably make a financial contribution. Therefore, it is proposed:

1) That the work be staged as follows:
   a) channel improvement between Bayshore Highway and San Francisco Bay; channel clearing between Bayshore Highway and El Camino Real; levee construction.
   b) improvement of bridges.
   c) bank protection and lining.
2) That the financial participation of San Mateo County and the City of Menlo Park be obtained, if possible.
3) That lining of portions of the channel [illegible]ce and retaining wall construction be deferred until the Corps of Engineers completes its study.

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[illegible] engineering studies of San Francisquito Creek be made in cooperation with the Corps of Engineers, United States Army. This proposal will insure that costly channel lining and retaining wall construction will not be installed at the expense of local governmental agencies while the possibility of Federal financial aid appears likely, and, at the same time, correct channel deficiencies to take care of immediate needs at minimum cost. If the financial cooperation of the Federal Government, San Mateo County and/or the City of Menlo Park cannot be obtained, sufficient funds will be available for bank protection in critical areas and levees with the understanding that said southerly bank will be set at an equal grade with the bank on the San Mateo County side.

If Federal funds are available for channel lining and retaining wall construction and if the financial cooperation of San Mateo County and/or the City of Menlo Park can be obtained in doing any of the work between El Camino Real and the Bay, the savings resulting from such cooperation will be used for cooperative engineering studies with the Corps of Engineers, for any financial contribution required by the Federal Government and for the acquisition of rights of way within Santa Clara County on San Francisquito Creek upstream from El Camino Real in order to meet the requirements of the Federal Government. If bonds are voted, but, because of Federal assistance, all of the hereinabove stated funds are not needed, then bonds will be sold only to the extent required.

ESTIMATED COSTS

The following estimate includes construction and related costs, costs of land, rights of way, easements and property proposed to be taken, acquired or injured in carrying out said improvement, costs of necessary new fences and or moving or replacing existing fences and utilities, all incidental

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likely to be incurred therewith, including legal, clerical, engineering, superintendence, inspection, printing and advertising; the total amount of bonds necessary to be issued to pay for the same, and any financial contribution which may be made to the Santa Clara Valley Water Conservation District for flood control benefits resulting from construction of water conservation dams.

The estimated cost for the proposed improvement in Zone NW-1 is $5,179,000. The costs of the individual projects constituting the improvement are as follows:

Stevens & Permanente Creeks, No. 1	$ 1,098,000
San Francisquito Creek, No. 2	1,043,091
Permanente Creek, No. 3	580,169
Adobe Creek, No. 4	700,467
Barron (Dry) Creek, No. 5	216,940
Barron (Dry) Creek, No. 6	280,000
Matadero Creek, No. 7	421,124
Matadero Creek, No. 8	136,000
Hale Creek, No. 9	438,411
Adobe Creek, No. 10	310,241
Stevens Creek, No. 11	20,557
GRAND TOTAL FOR ZONE NW-1	$5,179,000

As noted hereinabove this report contains an amended proposal for Project No. 1 and said amendment also includes a change in estimated costs. The original report, of date previously noted, contained an estimate in the amount of $849,000. Since filing of said original report, because of the proposed consolidation of flood waters by a diversion of Permanente Creek into

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Stevens Creek, near Bryant Avenue, it has become necessary to revise the limits of the project, and the design of the improvements. Due to the reasons just noted the estimate for Project No. 1 is now $1,032,000. $250,000 has been allocated by the Board of Supervisors, from the fund created by Section 13 of the Santa Clara County Flood Control and Water Conservation District Act, to Zone NW-1 to provide funds for the first stage of construction. $782,000, the difference between the total estimated cost and the amount previously allocated, is the sum included in the total amount of bonds to be issued to pay for the improvement in Zone NW-1.

METHODS OF FINANCING

According to the provisions of the Santa Clara County Flood Control and Water Conservation Act, three (3) primary methods of financing are available.

1) The Board of Supervisors may levy a special ad valorem tax or assessment on property within Zone NW-1 to cover the cost of the project.

Inasmuch as a tax or assessment in Zone NW-1 sufficient to raise the required funds in one year for the entire improvement would place an oppressive burden on the taxpayers of the zone construction financed by this method would have to be accomplished in stages.

2) The Board of Supervisors may issue general obligation bonds of [illegible] amount to cover the costs of this improvement, following approval by the electorate at a bond election. The total amount of bonds to be issued to pay for the improvement is $4,929,000.

Bonds are retired by revenue derived from an annual tax or assessment [illegible] upon all real property, including land and improvements, in Zone NW-1.

3) The Board of Supervisors may levy a District-wide tax or assessment which may be used for the purposes set forth in Section 13 of the Santa

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Clara County Flood Control and Water Conservation District Act. Pursuant to the terms of Section 13, this fund may be used in any zone provided that taxes or assessments are levied within such zone in the years immediately following the use of said fund to replace the amount so expended.

The assessed valuation of Zone NW-1, based on the latest tabulation of the County Assessor, is $150,000,000. In view of the anticipated rapid development, the assessed valuation in Zone NW-1 may continue to increase approximately 10% yearly following channel improvement. During the first year, a revenue of only $150,000 will be realized from a tax or assessment based on a 10¢ rate per $100 of assessed valuation. Therefore, assuming that the tax or assessment levied would not exceed 10¢ per $100 of assessed valuation, it will probably require more than 35 years to finance the improvement by stage construction or to replace funds allocated from the fund created by Section 13 above referred to, to pay for the cost of the improvement herein proposed.

It is proposed that a bond election be held for the issuance of bonds in the above amount, and in the event of failure of the electorate to approve a bonded indebtedness, that the Board make use of provisions outlined under (1) or (3) above. It appears that if bonds are not approved by the electorate of the Zone, the tax rate would have to be increased substantially over 10¢ per $100 of assessed valuation in order to effectively carry out the improvement whether by stage construction or use of the fund created by Section 13. For purposes of illustration, assuming a constant valuation, the tax rate would be approximately 33¢ per $100 of assessed valuation to perform such work by stages over a 10-year period of time. Using the same assumption, the levy

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of assessed valuation for a bonded indebtedness computed on the recovery method would be as shown on the table below. If bond funds available, the work could be performed within 2 to 4 years. Although at first glance that bond interest would bring a greater total over the years it whould be remembered that the present trend indicates cost of both land sequisition and construction would rise considerably during a ten-year staging operation; this indicated price rise would necessitate a substantially increased rate during the later stages, and would, in all probability, bring total costs to a figure greater than that of bond principal plus interest. In addition, the flood control problem would not be solved until the final stage was completed ten years hence; in the interim a flood could occur that would cause damage of proportions far greater than the total cost of the improvement proposed in this report.

Average Interest Rate	20-Yr. Bonds	30-Yr. Bonds	40-Yr. Bonds
	Av.Annual Levy	Av.Annual Levy	Av.Annual Levy
3%	22.1¢	16.8¢	14.2¢
3-1/4%	22.6¢	17.3¢	14.8¢
3-1/2%	23.1¢	17.9¢	15.4¢
3-3/4%	23.6¢	18.4¢	16.0¢
4%	24.2¢	19¢	16.6¢

BENEFITS TO BE DERIVED FROM PROPOSED IMPROVEMENT

The improvement proposed in the report would be of benefit to Zone NW-1 in the following manner:

1. Public property, including City and County roads, public school property, State highways, Federally-owned property and other publicly owned

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installations would be free from flood hazards and inundation such as experienced in 1952 and 1955.

2. Privately-owned property would received the same benefits.

3. Areas subject to inundation would be protected by proper levees and/or adequate channels.

4. Development of presently undeveloped areas would no longer be curtailed. The proposed channels have been designed to carry increased run-off from the areas in which complete urbanization is anticipated in addition to natural run-off during flood periods.

5. Economic benefits will result to the entire zone. Land subject to flooding and inundation is depreciated in value; when this hazard is removed, land values should increase. Land free from flooding or inundation is attractive to industrial, and residential developers. The recent flood of December, 1955 strongly indicates that land free from flooding is also more attractive to farmers because the erosion and crop loss suffered in major floods outweighs the benefits which may result from the deposit of silt on agricultural land by minor flooding. Many thousands of tons of valuable topsoil in Santa Clara County were eroded and removed during the 1955 flood. Unless channels are improved, the increased runoff resulting from urbanization will increase silt deposits and erosion in future floods of like magnitude and intensity. Present trends indicate that Santa Clara Valley, if given proper protection from Floods will become one of the nation's great centers for light industry which will, in turn, create employment and business activity resulting in a sound economy. If residential, commercial and industrial development of the area within Zone NW-1 can be enhanced by adequate flood control work, the increase in assessed valuation, created by the addition of structual improvements to land, will be substantial. The rate of such increase would be closely associated by direct ratio to the rate of progress in completing the proposed improvement.

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[illegible]

All existing signs indicate that the phenomenal trend of economic and population growth in the Santa Clara Valley area will project many years into the future, with a strong possibility that it will accelerate. With the flood control situation already critical, it is obvious that the problems involved in providing for the public safety will rapidly multiply with continued growth.

Flood control problems will, in fact, increase to the point where development will be seriously curtailed, which will, in turn, set up a chain reaction of reduced payrolls in the building trade, then will follow shrinking retail sales, then more unemployment in affected commercial and industrial organizations, and so on to a state of economic paralysis.

The alternative, of course, is approval of a bond issue that will finance flood control improvements proposed in this report. Not only is a flood [illegible] intolerable, but in this area it is unnecessary. The body of this report describes plans for the control of anticipated floods in this zone, and needs only ratification by the voters to effect construction of improvements that will be a permanent investment in the economic security of the Santa Clara Valley area.

Financial obligations to be accepted by the voters will steadily decrease as bond retirement costs are spread over the ever-increasing assessed valuation effected by the constant residential, commercial and industrial growth in this area. It is foreseeable that unit bond tax obligations will be cut in half within a few years by a corresponding doubling in assessed valuation.

With the information as to the economic feasiblity of the proposed project made available in this report, it is possible for all civic-minded individuals and organizations strongly to advocate the passage of a financing bond issue in this zone and thus assure its continued economic stability, as well as [illegible] of life and property of Santa Clara Valley residents.

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